

WHAT IS CLAIMED IS:

1. A system for detect a moving object, comprising:

a plurality of cameras capturing stereoscopic image successively in time series;

distance image generator inputting the images captured in time series and
5 generating a distance image indicative of a distance to an imaged object based on a
parallax of the inputted images;

difference image generator inputting the images captured in time series and
generating a difference image between the inputted images;

edge image generator inputting the images captured in time series and generating
10 an edge image by extracting pixels where change in brightness is equal to or greater
than a predetermined level;

moving object distance setting unit inputting the generated distance image and
the difference image and setting a moving object distance indicative of a distance to a
position where the moving object is estimated to be present, based on the inputted
15 distance image and the difference image;

moving object distance image generator inputting at least the generated edge
image and the set moving object distance and generating a moving object distance
image by extracting pixels corresponding to the set moving object distance from the
generated edge image;

20 profile extraction region setting unit inputting at least the generated moving
object distance image and summing number of pixels in the inputted moving object
distance image to set a profile extraction region, where extraction of the moving
object is to be conducted, in the generated moving object distance image by defining a
position, where the summed number of pixels is greatest, as its center line;

25 center line corrector inputting at least the edge image and the defined center line
of the profile extraction region and correcting the center line of the profile extraction
region based on the inputted edge image; and

moving object detector inputting the profile extraction region whose center line is
corrected and extracting a profile of the moving object in the inputted profile
30 extraction region to detect the moving object.

2. The system according to claim 1, wherein the profile extraction region setting unit sums the number of pixels in the inputted moving object distance image to produce a histogram and defines, as the center line, the position where as the histogram is greatest.

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3. The system according to claim 1, further including:

color region image generator inputting the images captured in time series and generating a color region image by extracting a predetermined color from the inputted image; and

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a data base storing a plurality of color region patterns;

and the center line corrector compares the generated color region image with the stored color region patterns and corrects the center line based on a best match pattern.

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4. The system according to claim 3, wherein the predetermined color is a flesh color.

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5. The system according to claim 1, wherein the moving object detector extracts the profile of the moving object by using an active profile model.

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6. The system according to claim 1, wherein the moving object is a human being.

7. A method of detect a moving object, comprising the steps of:

capturing stereoscopic image successively in time series;

inputting the images captured in time series and generating a distance image indicative of a distance to an imaged object based on a parallax of the inputted images;

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inputting the images captured in time series and generating a difference image

between the inputted images;

inputting the images captured in time series and generating an edge image by extracting pixels where change in brightness is equal to or greater than a predetermined level;

- 5 inputting the generated distance image and the difference image and setting a moving object distance indicative of a distance to a position where the moving object is estimated to be present, based on the inputted distance image and the difference image;

- 10 inputting at least the generated edge image and the set moving object distance and generating a moving object distance image by extracting pixels corresponding to the set moving object distance from the generated edge image;

- 15 inputting at least the generated moving object distance image and summing number of pixels in the inputted moving object distance image to set a profile extraction region, where extraction of the moving object is to be conducted, in the generated moving object distance image by defining a position, where the summed number of pixels is greatest, as its center line;

inputting at least the edge image and the defined center line of the profile extraction region and correcting the center line of the profile extraction region based on the inputted edge image; and

- 20 inputting the profile extraction region whose center line is corrected and extracting a profile of the moving object in the inputted profile extraction region to detect the moving object.

- 25 8. The method according to claim 7, wherein the step of profile extraction region setting sums the number of pixels in the inputted moving object distance image to produce a histogram and defines, as the center line, the position where as the histogram is greatest.

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9. The method according to claim 7, further including the steps of:

inputting the images captured in time series and generating a color region image
by extracting a predetermined color from the inputted image; and
storing a plurality of color region patterns;
and the step of center line correction compares the generated color region image
5 with the stored color region patterns and corrects the center line based on a best match
pattern.

10 10. The method according to claim 9, wherein the predetermined color is a flesh
color.

15 11. The method according to claim 7, wherein the step of moving object detection
extracts the profile of the moving object by using an active profile model.

12. The method according to claim 7, wherein the moving object is a human
being.